

THE SAWFLY GENUS *KAMBAITINA* MALAISE
(HYMENOPTERA: TENTHREDINIDAE) IN INDIA

MALKIAT S. SAINI, DAVID R. SMITH, AND V. VASU

(MSS, VV) Department of Zoology, Punjabi University, Patiala-147002, India; (DRS) Systematic Entomology Laboratory, PSI, Agricultural Research Service, U.S. Department of Agriculture, % National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0168, U.S.A.

Abstract.—The southeastern Asian genus *Kambaitana* is reviewed. Five **new species** from India are described: *K. clypeata*, *K. lineata*, *K. impunctata*, *K. pup*, and *K. cardiaca*. *Kambaitana fulvipicta* Malaise from Myanmar and India is redescribed. Males of the genus are characterized for the first time. A key for all seven known species, including *K. albipicta* Malaise from Myanmar, is provided.

Key Words: *Kambaitina*, India, Myanmar, Tenthredinidae, Allantinae

The genus *Kambaitina* is known only from Myanmar and India. It was described by Malaise (1961) who included two new species, *K. fulvipicta* and *K. albipicta*, both from Myanmar. Saini and Deep (1994) first recorded the genus and *K. albipicta* from India. The genus belongs in the subfamily Allantinae as defined by Smith (1979), and in which it was subsequently included by Abe and Smith (1991). Here we describe five additional species from India, describe the males of the genus for the first time, and give a key to all seven species.

Host plants are not known for the genus. Species may be associated with rosaceous plants such as *Rubus* spp. or *Fragaria* spp. as are many related allantines in the Northern Hemisphere.

Types of new species are deposited in Pusa National Collections, Division of Entomology, Indian Agricultural Research Institute, New Delhi. Paratypes are in Punjabi University, Patiala, India (PUP) and the National Museum of Natural History, Smithsonian Institution, Washington, DC (USNM).

Abbreviations used in text are: EL = eye length; IATS = inner apical tibial spur; ICD = intercenchri distance; IDMO = interocular distance at level of median ocellus; ITD = intertegular distance; LID = lower interocular distance; MB = metabasitarsus; OATS = outer apical tibial spur; OCL = oculooccipital distance; OOL = oculoocellar distance, POL = postocellar distance.

Kambaitana Malaise

Kambaitina Malaise 1961: 253–255; Malaise 1963: 192 (in key); Abe and Smith 1991: 41, 103. Type species: *Kambaitina fulvipicta* Malaise, by original designation.

Description.—Antenna long, 2.7–3.2× head width, hardly tapering towards apex; third segment equal to or shorter than fourth segment; scape longer than its apical width; pedicel almost as long as broad. Inner margins of eyes subparallel, scarcely converging below; lower interocular distance greater than eye length (Fig. 2). Clypeus deeply, roundly incised $\frac{1}{3}$ to $\frac{1}{2}$ its medial length, with blunt lateral lobes (Fig. 2); frontal area

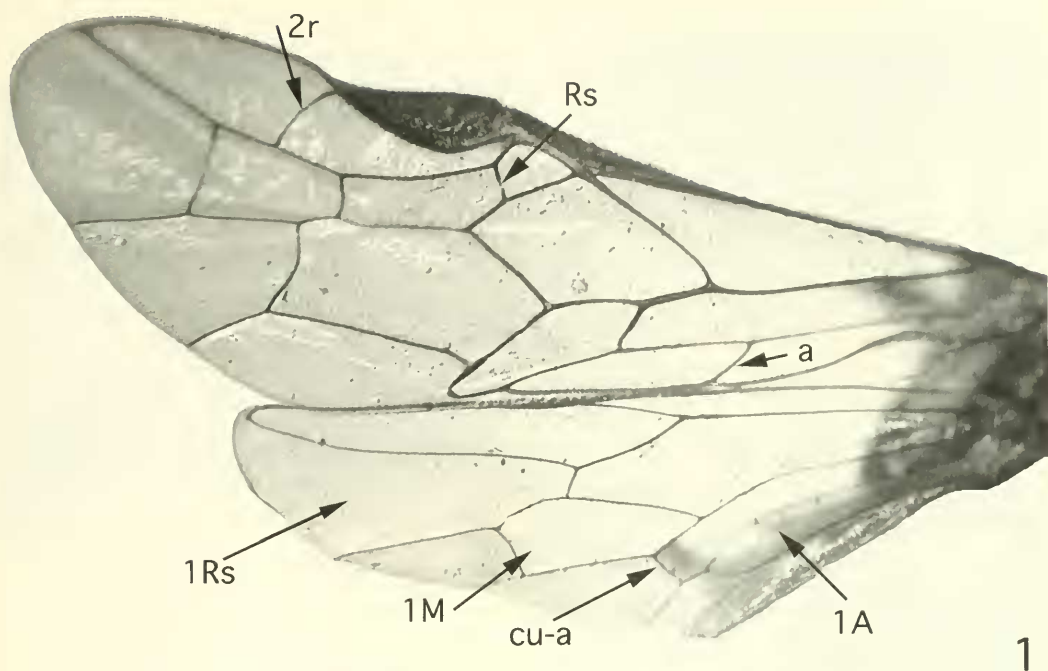


Fig. 1. Forewing and hindwing of *Kambaitina cardiaca*.

roundly elevated above a tangent touching both eyes; postocellar area subconvex, broader than long (Fig. 3). Malar space about equal to diameter of front ocellus. Genal carina developed only near base of mandible. Mandibles asymmetrical, right mandible with a large subapical tooth, left mandible with minute subapical tooth, almost simple. Metabasitarsus shorter than following segments combined; tarsal claws with long subapical tooth, slightly shorter than outer tooth; basal lobe absent. Forewing (Fig. 1) with crossvein 2r present; Rs present, therefore with 4 cubital cells; anal cross vein (a) oblique (70°). Hindwing (Fig. 1) with cell 1M closed, cell 1Rs open; anal cell (1A) petiolate, petiole shorter than cell width; cu-a meeting petiole of anal cell at a slightly oblique angle. Ovipositor well sclerotized, long and slender (Fig. 4).

Discussion.—*Kambaitana* belongs to the group of genera Malaise (1961) called the *Monostegidea* group, which includes *Empromus* Malaise, *Monostegidea* Rohwer, and *Kambaitia*. All are eastern Asian and Ori-

ental. This group is characterized by the asymmetric mandibles, the right mandible with a large subapical tooth and the left mandible with only a minute tooth, almost simple (in other genera of Allantinae with asymmetric mandibles the left mandible has a large tooth and the right mandible is simple); the long malar space; the closed cell M in the hindwing; the short metabasitarsus; and the long antennae with a short third segment. Malaise (1961) gave a key to these four genera and defined *Kambaitana* by roundly incised clypeus with blunt lateral teeth; the hind orbits carinate only near the base of the mandibles; the scape and pedicel both longer than broad; the tarsal claw with inner tooth about as long as outer one and without a basal lobe; the subconvex mesoscutellum situated on the same level as all three mesonotal lobes; the hindleg with the tibia longer than the tarsus; and the lateral furrows of the head reaching the back of the head. The latter four characters distinguish *Kambaitana* from *Kambatia*, the genus to which it is most similar.



Figs. 2-3. *Kambaitina cardiaca*. 2, Head, front view. 3, Head, dorsal view.

Based on the tarsal claw character given by Malaise (1961), the placement of *K. albipicta* from Myanmar is not clear. He stated that *K. albipicta* has "claw without basal lobe, with a very small one, then with a bristle." Because species of *Kambaitina* lack a basal lobe, we believe *K. albipicta* may belong in *Kambatia*. Although this decision will require study of the type, we include *K. albipicta* in the following key to species.

Malaise (1961) did not have males of either of the two species he described. Because we have available males of most species, we feel that the generic character "scape and pedicel distinctly longer than they are broad at apex," should be changed to "scape distinctly longer than broad at apex." In all males, the pedicel is almost as long as broad at its apex.

KEY TO SPECIES OF *KAMBAITINA*

1. Antenna entirely black 2
- Antenna with a white band, segments 6 to 7 or more whitish yellow 4
2. Clypeus roundly, narrowly, and deeply incised (Fig. 8); median fovea broad, deep and ditch-like; antennal segments 5-9 compressed (male genitalia as in Figs. 28, 34) . . . *K. clypeata*, n. sp.
- Clypeus broadly, roundly, or subsquarely incised (Figs. 9-10); median fovea shallow, in form of narrow streak; antennal segments 4-9 compressed 3
3. Postocellar area broader than long as 3:2, with a distinct medial longitudinal furrow on its anterior $\frac{3}{4}$; clypeus subsquarely incised, with crenulate anterior margin (Fig. 10); labrum with rounded anterior margin (Fig. 10); inner half of tegula and lateral deflexed parts of tergite 2 whitish yellow; all sternites black; frons minutely, densely punctured (male genitalia as in Figs. 29, 36) *K. lineata*, n. sp.
- Postocellar area broader than long as 2:1, without median furrow; clypeus roundly incised, with smooth anterior margin (Fig. 9); labrum with pointed anterior tip (Fig. 9); tegula entirely black, lateral deflexed sides of tergites 2-4 and sternites 2-5 entirely whitish yellow; frons impunctate (female lancet as in Fig. 24; male genitalia as in Figs. 30, 35) *K. impunctata*, n. sp.
4. Propodeum entirely black; antennal segments 6 and 7 whitish yellow, segments 8 and 9 compressed; clypeus roundly incised up to $\frac{1}{3}$ of its medial length (Fig. 7) (female lancet as in Fig. 22; male genitalia as in Figs. 27, 33) *K. pup*, n. sp.
- Posterior margin of propodeum whitish yellow; antennal segments with at least 6-8 whitish yellow, segments 6-9 compressed; clypeus roundly or subsquarely incised up to $\frac{1}{2}$ of its medial length (Figs. 5-6) 5
5. Postocellar area broader than long as 2:1; lateral furrows not reaching hind margin of head; clypeus subsquarely incised (Fig. 6); only inner half of tegula whitish yellow; antennal segments 3 and 4 equal (female lancet as in Fig. 23; male genitalia as in Figs. 26, 32) *K. cardiaca*, n. sp.
- Postocellar area broader than long as 5:4; lateral furrows reaching hind margin of head; clypeus roundly incised (Fig. 5); tegula whitish yellow; antennal segments 3 and 4 as 5:6 6
6. Narrow posterior margins of tergites 2, 6-8 and broad posterior margin of tergite 9, antennal segments from middle of 5 to 8, and spot on temple whitish yellow; wing hyaline, tarsi 2-4 uniformly fusc ferruginous; tarsal claw with-



Fig. 4. Apex of abdomen, sawsheath, and ovipositor of *Kambaitina fulvipicta*.

out basal lobe (female lancet as in Fig. 24; male genitalia as in Figs. 25, 31)

. *K. fulvipicta* Malaise

— Broad posterior margins of all tergites and antennal segments from middle of 4 to 8 whitish yellow; spot on temple fuscous; wings faintly yellowish; metatarsi 2–4 black with a white longitudinal stripe on posterior surface; tarsal claw with indistinct basal lobe

. *K. albipicta* Malaise

***Kambaitina clypeata* Saini, Smith, and Vasu, new species**
(Figs. 8, 11, 28, 34)

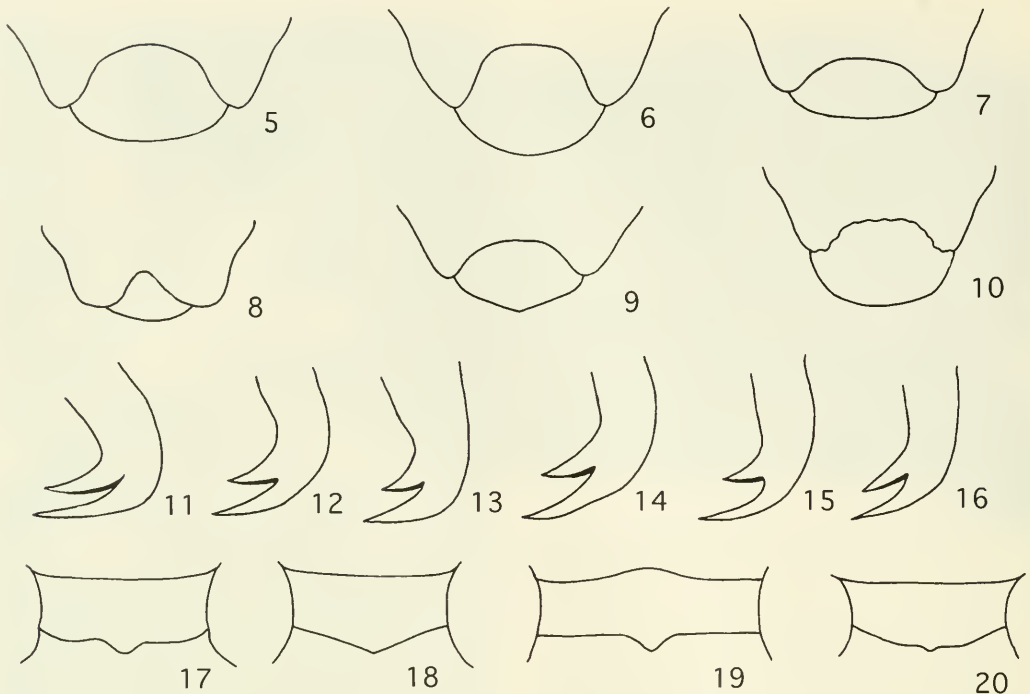
Female.—Unknown.

Male.—*Color*: Black with labrum, clypeus except extreme base, lower orbits, extreme posterodorsal and posterolateral margins of pronotum, extreme apices of coxae, and trochanters whitish yellow; spot on mesoscutellum, femora, tibiae, protarsus, mesotibia and mesotarsus fuscoferruginous. Wings hyaline; venation including costa, subcosta, and stigma piceous.

Structure: Length 7.0 mm. Antennal length 3× head width, antennal segments 3 and 4 equal, apical 4 segments gradually decreasing in length as 8:7:6:4, segments 5–9 compressed. Clypeus (Fig. 8) narrowly and roundly incised up to 1/3 its medial length with broadly rounded lateral teeth;

labrum (Fig. 8) with deflexed rounded anterior margin, broader than long as 3:2. Supraclypeal area triangularly raised with a sharp longitudinal carina; malar space 0.75× diameter of median ocellus; lower margin of eye at level of lower rim of antennal socket; LID:IDMO:EL = 3:3:2. Supraclypeal and supraantennal pits well marked; supraantennal tubercles well developed and confluent with similarly elevated frontal ridges; median fovea in form of prominent, broad groove, clearly reaching median ocellus; post-, inter-, and circumocellar furrows sharp and distinct; lateral postocellar furrows deep, parallel, and abruptly ending just before hind margin of head; postocellar area broader than long as 4:3; head slightly widened behind eyes; 00L:POL:OCL = 3:2:3. Mesoscutellum subconvex, without carina, its appendage without carina; ICD:ITD = 1:2. Tarsal claw (Fig. 11); metabasitarsus subequal to following segments combined as 6:7; IATS:MB:OATS = 4:12:3. Genitalia: Penis valve (Fig. 28), genital capsule (Fig. 34).

Sculpture and pubescence: Head shining with few, sparse, fine, inconspicuous wrinkles confined to frontal area. Thorax with minute scattered punctures except posterior



Figs. 5–20. 5–10, Clypeus and labrum. 5, *Kambaitina fulvipicta*. 6, *K. cardiaca*. 7, *K. pup.* 8, *K. clypeata*. 9, *K. impunctata*. 10, *K. lineata*. 11–16, Tarsal claw. 11, *K. clypeata*. 12, *K. fulvipicta*. 13, *K. impunctata*. 14, *K. cardiaca*. 15, *K. pup.* 16, *K. lineata*. 17–20, Hypopygium. 17, *K. fulvipicta*. 18, *K. impunctata*. 19, *K. cardiaca*. 20, *K. pup.*

slope of mesoscutellum bearing numerous large, shallow punctures, surface shining. Abdomen impunctate, surface subshining. Body covered with blackish pubescence.

Type.—Holotype ♂, India, Manipur, Ukhrul, 1,800 m. 23.ix.1992.

Distribution.—India: Manipur.

Remarks.—The black antennae and characteristic shape of the clypeus which is roundly, narrowly, and deeply incised separates this species from other species of this genus.

Etymology.—The species name reflects the characteristic shape of the clypeus.

***Kambaitina lineata* Saini, Smith, and Vasu, new species**

(Figs. 10, 16, 29, 36)

Female.—Unknown.

Male.—*Color*: Body black with labrum, clypeus, a square spot on supraclypeal area,

inner orbit, lower hind orbit, spot on temple close to hind margin of head, broad posterodorsal and posteroventral margins of pronotum, most of tegula except an outer spot, posterior triangular apex of mesonotal middle lobe, top of mesoscutellum, parapterum, broad spot in middle of mesepisternum, spot on metepisternum, deflexed lateral margin of tergite 2, procoxa except extreme base, apical $\frac{1}{2}$ of mesocoxa, outer stripe and apical $\frac{1}{3}$ of metacoxa, and all trochanters and adjacent parts of femora whitish yellow; femora and tibiae and tarsi of all legs fuscoferruginous. Wings hyaline; venation including costa, subcosta, and stigma piceous.

Structure: Average length 6.5mm. Antennal length $3.2\times$ head width, antennal segments 3 and 4 subequal as 8:9, apical 4 segments subequal as 6:5:4:4, segments 4–9 compressed. Clypeus (Fig. 10) subrectan-

gularly incised up to $\frac{1}{3}$ its medial length with crenulate anterior margin and blunt lateral teeth. Labrum (Fig. 10) with deflexed, rounded anterior margin, broader than long as 5:3. Supraclypeal area triangularly raised with a faint longitudinal blunt carina; malar space $0.75\times$ diameter of front ocellus; lower margin of eye below level of antennal socket; LID:IDMO:EL = 3:3:2. Supraclypeal and supraantennal pits deep and well marked; supraantennal tubercles moderately raised and confluent with similarly raised frontal ridges; median fovea in form of shallow ditch with a very fine streak in middle, posteriorly not extending to median ocellus; post-, inter-, and circumocellar furrows sharp and distinct; lateral furrows deep, bulging medially and reaching hind margin of head, postocellar area subconvex, with shallow but distinct median longitudinal furrow on anterior $\frac{3}{4}$, broader than long as 3:2. Head parallel behind eyes; OOL:POL:OCL = 3:2:3. Mesoscutellum subconvex, ecarinate, its appendage ecarinate; ICD:ITD = 1:2. Tarsal claw (Fig. 16); metabasitarsus shorter than following segments combined as 2:3; IATS:MB:OATS = 5:16:4. Genitalia: Penis valve (Fig. 29), genital capsule (Fig. 36).

Sculpture and pubescence: Frontal area with minute irregular, scattered punctures, rest of head shining with dense, minute punctures. Thorax almost impunctate except few shallow punctures on posterior slope of mesoscutellum, surface shining with general oily lustre. Abdomen impunctate, shining. Body covered with brownish black pubescence.

Types.—Holotype δ India, Nagaland, Pfutsero, 2,000 m, 20.v. 1993. Paratypes: 1 δ , India, Nagaland, Vizho-Razho, 1,800 m, 11.v.1993; 2 δ , same data as holotype.

Distribution.—India: Nagaland.

Remarks.—A combination of the following characters separate *K. lineata* from other species of the genus: antenna and sternites entirely black; postocellar area with a distinct medial longitudinal furrow on anterior $\frac{3}{4}$, clypeus subsquarely incised; inner

half of tegulae whitish yellow; and antennal segments 4–9 distinctly compressed.

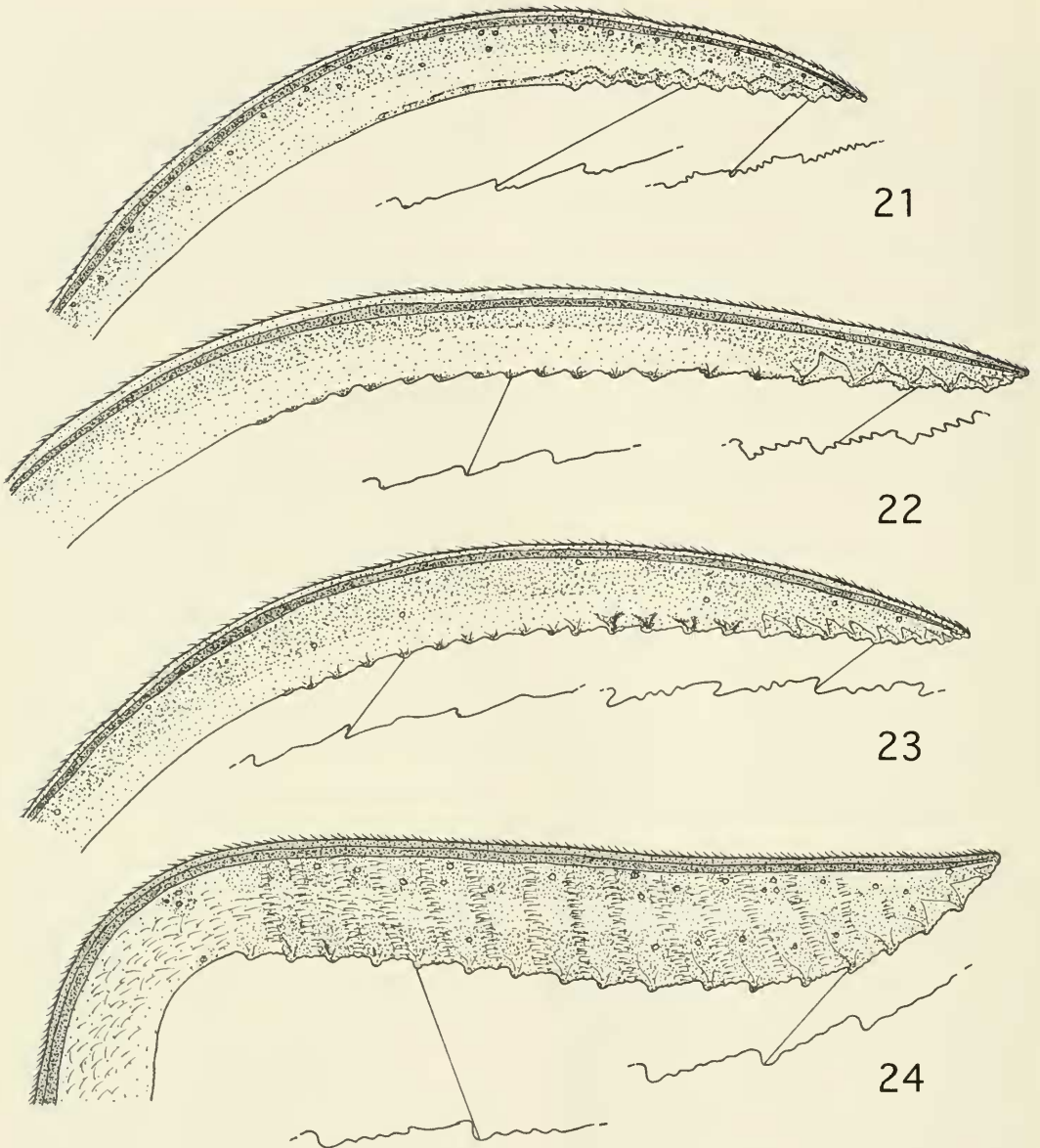
Etymology.—The species name is based on the presence of a distinct medial longitudinal furrow on the anterior $\frac{3}{4}$ of postocellar area.

Kambaitina impunctata Saini, Smith,
and Vasu, new species

(Figs. 9, 13, 18, 24, 30, 35)

Female.—*Color:* Black with labrum, clypeus, triangular spot on supraclypeal area, basal $\frac{1}{2}$ of mandible, narrow inner orbit, spot on mesonotal lateral lobe before mesoscutellum, spot on mesoscutellum, broad transverse stripe on lower half of mesepisternum narrowly extending to coxal rim, lateral deflexed sides of tergites 2–4, sternites 2–5, and coxae and trochanters whitish yellow; femora, tibiae, and tarsi fulvous. Wings hyaline; venation including costa, subcosta, and stigma piceous.

Structure: Length 7.0 mm. Antennal length $3.2\times$ head width, segments 3 and 4 subequal as 5:6, length of apical four segments gradually decreasing as 8:7:6:5, flagellar segments 4–9 faintly compressed. Clypeus (Fig. 9) roundly incised up to $\frac{1}{3}$ its medial length with blunt lateral teeth. Labrum (Fig. 9) with deflexed pointed anterior tip, broader than long as 3:2. Supraclypeal area protuberant; malar space $0.75\times$ diameter of front ocellus; lower margin of eye below level of antennal socket; LID:IDMO:EL = 3:3:2. Supraclypeal and supraantennal pits deep and well marked, supraantennal tubercles moderately raised and confluent with similarly roundly raised frontal ridges; median fovea in form of deep, narrow, streak extending to median ocellus, post-, inter-, and circumocellar furrows sharp; lateral furrows deep and ending abruptly just before hind margin of head; postocellar area broader than long as 2:1. Head parallel behind eyes; OOL:POL:OCL = 3:2:3. Mesoscutellum subconvex, ecarinate, its appendage ecarinate; ICD:ITD = 2:5. Tarsal claw (Fig. 13); metabasitarsus equal to following joints combined; IATS:



Figs 21-24. Lance. 21, *Kambaitina fulvipicta*. 22, *K. pup.* 23, *K. cardiaca*. 24, *K. impunctata*.

MB:OATS = 5:14:4. Lance (Fig. 24) broad, with 18 serrulae, annular hairs distinct full width of lance. Hypopygium as in Fig. 18.

Sculpture and pubescence: Head, thorax and abdomen impunctate and shining with general oily lustre. Body covered with brownish pubescence.

Male.—Length 6.5 mm. Similar to fe-

male except ventral surface of scape, lower orbits, ventral half of hind orbits, parapterum, broad transverse band extending from anterior to posterior margin along convexity of mesepisternum whitish yellow. Lateral deflexed sides of tergite 4 and all sternites entirely black. Genitalia: Penis valve (Fig. 30), genital capsule (Fig. 35).

Types.—Holotype ♀, India, West Ben-

gal, Darjeeling, 2,280 m, 7.v.1993. Paratype: 1 ♂ same data as holotype, deposited in PUP.

Distribution.—India: West Bengal.

Remarks.—*Kambaitina impunctata* is separated from other species by the following combination of characters: antenna black; clypeus roundly incised; labrum with pointed anterior tip; tegulae black; lateral deflexed parts of tergites 2–4 and sternites 2–5 entirely whitish yellow; and body impunctate. The female lancet also is distinct from other known females of the genus; it is broader and has distinct annular hairs extending its full width (Fig. 24). Females of the other species with black antennae are unknown, but it is possible this type of lancet is characteristic of species of this group, whereas the lancets of the species with white-banded antennae are much more slender and lack annular hairs.

Etymology.—The species name pertains to the impunctate body.

***Kambaitina pup* Saini, Smith, and Vasu,
new species**

(Figs. 7, 15, 20, 22, 27, 33)

Female.—*Color*: Black, with antennal segments 6 and 7, labrum, clypeus, small square spot on supraclypeal area, broad lower and narrow upper orbits discontinuous in middle, broad spot on lower hind orbits, spot on hind margin of head behind temple, broad posterodorsal and posterolateral margins of pronotum, tegula, apex of mesonotal middle lobe, anterior mesoscutellum, parapterum, broad spot in middle of mesepisternum, spot on posteroventral tip of mesepimeron, spot on metepisternum, deflexed lateral sides of all tergites, posterior margin of last sternite, procoxa except extreme base, apical ½ of meso- and metacoxae, and all trochanters and adjacent parts of all femora whitish yellow; femora, tibiae and tarsi fuscoferruginous. Wings hyaline; venation including costa, subcosta, and stigma piceous.

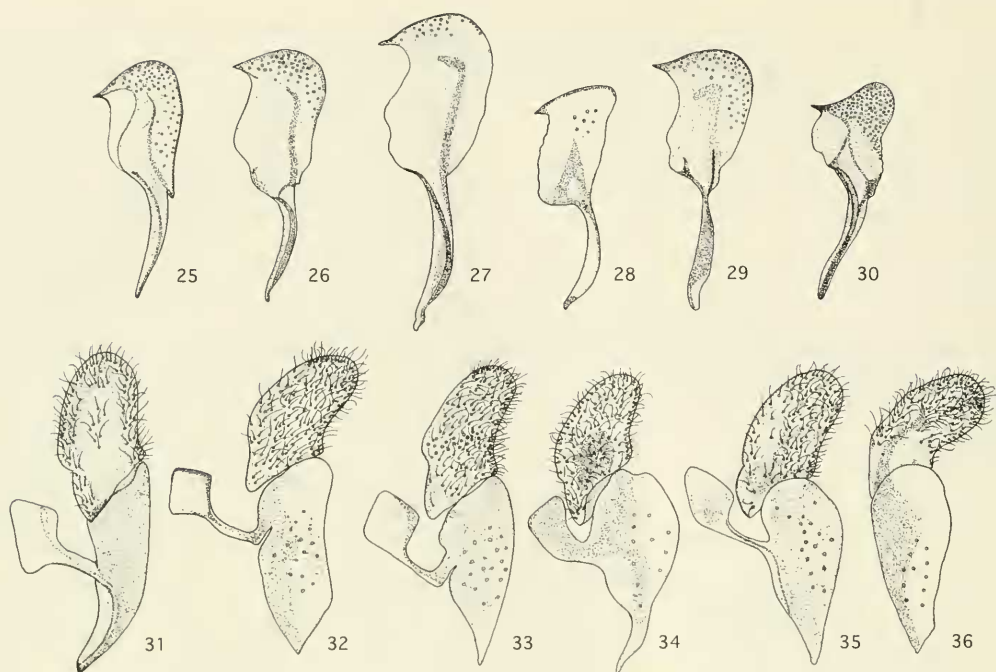
Structure: Average length 6.5 mm. Antennal length 2.7× head width; segments 3

and 4 equal, apical four segments subequal as 8:7:6:5, segments 8 and 9 compressed. Clypeus (Fig. 7) roundly incised up to ½ of medial length with blunt lateral lobes. Labrum (Fig. 7) with deflexed rounded anterior margin, broader than long as 3:2. Supraclypeal area protuberant; malar space equal to diameter of median ocellus; lower margin of eye below level of antennal socket; LID:IDMO:EL = 6:6:3. Supraclypeal and supraantennal pits deep and well marked; supraantennal tubercles moderate and confluent with similarly roundly raised frontal ridges; median fovea in form of broad and shallow groove marked by longitudinal fine streak in its middle, posteriorly shallowly reaching front ocellus; post-, inter-, and circumocellar furrows sharp and distinct; lateral furrows deep, protuberant, sunken and ending just before hind margin of head; postocellar area broader than long as 3:2. Head parallel behind eyes; 00L:POL:OCL = 3:2:2. Mesoscutellum subconvex, ecarinate, its appendage ecarinate. Tarsal claw (Fig. 15); metabasitarsus shorter than following joints combined as 4:5; IATS:MB:OATS = 3:8:2. Lancet (Fig. 22) with 22 serrulae on about apical half of lancet; without annular hairs. Hypopygium as in Fig. 20.

Sculpture and pubescence: Frontal area with dense, minute, irregular punctures intermingled with network of irregular grooves and ridges, rest of head with fine, shallow punctures, surface shining. Thorax impunctate except posterior slope of mesoscutellum bearing few minute shallow punctures, surface shining with general oily lustre. Abdomen impunctate, subshining. Body covered with brownish pubescence.

Male.—Average length 6.5 mm. Similar to female except broad front and hind orbits whitish yellow and continuous with temple spot. Deflexed lateral sides of tergites 2–4 fuscous. Genitalia: Penis valve (Fig. 27), genital capsule (Fig. 33).

Types.—Holotype ♀, India, Manipur, Ukhrul 1,700 m, 23.v.1993. Paratypes: 1 ♀, Manipur, Zunheboto, 1,800 m, 14.V.1993;



Figs. 25-36. Male genitalia. 25-30, Penis valve. 25, *Kambaitana fulvipicta*. 26, *K. cardiaca*. 27, *K. pup.* 28, *K. clypeata*. 29, *K. lineata*. 30, *K. impunctata*. 31-36, Gonoforceps. 31, *K. fulvipicta*. 32, *K. cardiaca*. 33, *K. pup.* 34, *K. clypeata*. 35, *K. impunctata*. 36, *K. lineata*.

1 ♀, 16.v.1993; 1 ♂, Nagaland, Vinzho-Razho, 1,800 m, 11.v.1993; 1 ♂, Satakha, 1,500 m, 15.v.1993. 1 ♀, 2 ♂, Pfutser, 2,100 m, 20.v.1993.

Distribution.—India: Manipur, Nagaland.

Variation.—The extreme base of antennal segment 6 and extreme tip of segment 7 may be fuscous; the deflexed lateral sides of tergites 2-4 in the male may be fuscous, and the outer margins of the tegulae may be piceous.

Remarks.—*Kambaitana pup* is distinguished from other species of the genus by the following: Antennal segments 6 and 7 whitish yellow; clypeus roundly incised for one-third its medial length; propodeum entirely black; and antennal segments 8 and 9 distinctly compressed.

Etymology.—The species name is derived from the acronym of Punjabi University, Patiala (PUP), where revisionary work on the taxonomy of sawflies is being carried out. It is used as a noun in apposition.

Kambaitina cardiaca Saini, Smith, and Vasu, new species

(Figs. 1-3, 6, 14, 19, 23, 26, 32)

Female.—*Color*: Black with antennal segments 6-8, labrum, clypeus, square spot on supraclypeal area; broad inner orbit, triangular spot on hind margin of head behind temple, broad posterodorsal and posterolateral margins of pronotum; inner half of tegula, apex of mesonotal middle lobe, top of mesoscutellum, broad spot on metascutellum, parapterum, broad spot on lower $\frac{2}{3}$ of mesepisternum, spot on posterior tip of mesepimeron, paired spot on each metepisternum and metepimeron, spot on metasternum, extreme posterior margin of propodeum and tergites 2, 8 and 9, deflexed lateral sides of all tergites, broad medial spot on sternites 2-6, sternite 7 more or less, pro- and mesocoxae except extreme bases, outer surface and apical $\frac{1}{2}$ of metacoxa, and all trochanters and adjacent parts of all fem-

ora whitish yellow; femora, tibiae, and tarsal segments fuscoferruginous. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 9.5 mm. Antenna $2.7\times$ head width, segments 3 and 4 equal in length, apical 4 segments subequal as 8:7:6:5, segments 6–9 compressed. Clypeus (Figs. 2, 6) subsquarely incised up to $\frac{1}{2}$ its medial length with blunt lateral teeth. Labrum (Figs. 2, 6) with deflexed rounded anterior margin, broader than long as 3:2. Supraclypeal area protuberant with faint longitudinal carina; malar space equal to diameter of median ocellus, lower margin of eye below level of antennal socket; LID: IDMO:EL = 6:6:3. Supraclypeal and supraantennal pits well marked; supraantennal tubercles moderately raised and confluent with similarly raised frontal ridges; frontal anterior to front ocellus broadly and roundly heart shaped, gradually and only very faintly depressed towards center, with median fovea in form of narrow streak shallowly reaching median ocellus; postocellar furrows sunken; inter- and circumocellar furrows sharp and distinct; lateral furrows deep and abruptly ending well before hind margin of head; postocellar area broader than long. Head parallel behind eyes; OOL: POL:OCL = 3:2:3. Mesoscutellum subconvex, ecarinate, its appendage ecarinate; ICD:ITD = 2:5. Tarsal claw (Fig. 14); metatarsus subequal to following segments combined as 8:9; IATS:MB:OATS = 3:8:2. Lancet (Fig. 23) with 23 serrulae on about apical half of lancet; annular hairs absent. Hypopygium as in Fig. 19.

Sculpture and pubescence: Frontal area with dense, minute, irregular punctures, rest of head with sparse, fine, punctures, surface shining. Thorax impunctate except posterior slope of mesoscutellum bearing few minute punctures, surface shining with general oily lustre. Abdomen impunctate, dull. Body covered with fuscous pubescence.

Male.—Average length 7.5 mm. Similar to female except deflexed lateral margin of

tergites 5–9 black. Genitalia: Penis valve (Fig. 26); genital capsule (Fig. 32).

Types.—Holotype: ♀, India, Manipur, Ukhrul, 1,700 m, 21.v.1993. Paratypes: 4 ♀, 6 ♂, Manipur, Ukhrul, 1,700 m, 21.v.1993; 1 ♀, 2 ♂, Nagaland, Vizho-Razho, 1,800 m, 11.v.1993; 1 ♂, Zunheboto, 1,800 m, 14.v.1993; 6 ♀, 2 ♂, Satakha, 1,500 m, 15.v.1993; 3 ♀, 2 ♂, Pfutsero, 2,000 m, 19.v.1993, 15, 4 ♀, 3 ♂, 20.v.1993.

Distribution.—India: Manipur, Nagaland.

Variation.—Antennal segments 7 and 8 may be more or less fuscoferruginous.

Remarks.—*Kambaitina cardiaca* is distinguished from other species of the genus by antennal segments 6–8, the inner half of the tegulae, the posterior margins of tergites 2, 8 and 9, and the medial spot on sternites 2–6 whitish yellow; the subsquarely incised clypeus with the emargination half its medial length; and the lateral furrows ending before the hind margin of the head.

Etymology.—The species name is derived from the peculiar shape of the frontal area.

Kambaitina fulvipicta Malaise
(Figs. 4, 5, 12, 17, 21, 25, 31)

Kambaitina fulvipicta Malaise 1961: 254–255; Saini and Deep 1994: 49.

Female.—*Color:* Black with antennal segments 6–8, labrum, clypeus, square spot on supraclypeal area, basal $\frac{1}{2}$ of mandible, inner orbits, lower half of hind orbit, spot on temple, broad posterodorsal and posterolateral margins of pronotum, tegula, apex of mesonotal middle lobe, top of mesoscutellum, broad spot on metascutellum, parapterum, broad transverse spot on lower half of mesepisternum, posterior margin of propodeum, extreme posterior margins of tergites 2 and 6–8 and broad posterior margin of tergite 9, deflexed lateral sides of all tergites, sternites 2–7 more or less, pro- and mesocoxae and trochanters, apical $\frac{1}{2}$ of metacoxa, and metatrochanter whitish yellow; femora, tibiae, and tarsi fuscoferruginous.

Wings hyaline; venation including costa, subcosta, and stigma piceous.

Structure: Average length 8.0 mm. Antennal length $3.2\times$ head width; segments 3 and 4 subequal as 5:6, length of apical four segments gradually decreasing as 8:7:6:5, apical segments 6–9 faintly compressed. Clypeus (Fig. 5) roundly incised for $\frac{1}{2}$ its medial length with blunt lateral lobes. Labrum (Fig. 5) with deflexed rounded anterior margin, broader than long as 3:2. Supraclypeal area protuberant; malar space $1.25\times$ diameter of front ocellus; lower margin of eye below level of eye; LID: IDMO: EL 3:3:2. Supraclypeal and supraantennal pits well marked; supraantennal tubercles moderately raised and confluent with similarly roundly raised frontal ridges; median fovea in form of narrow depressed area with a pit on its anterior half and posteriorly only shallowly reaching front ocellus; post-, inter-, and circumocellar furrows distinct; lateral furrows deep, bulging medially and reaching hind margin of head; postocellar area broader than long as 5:4. Head parallel behind eyes; OOL:POL:OCL = 6:4:7. Mesoscutellum almost flat, ecarinate, its appendage ecarinate; ICD:ITD = 1:3. Tarsal claw (Fig. 12); metabasitarsus shorter than following segments combined as 3:4; IATS: MB:OATS = 8:20:7. Lancet (Figs. 4, 21) with 10 serrulae on only apical half; annular hairs absent. Hypopygium as in Fig. 17.

Sculpture and pubescence: Frontal area opaque with dense and minute punctures, rest of head shining with scattered minute punctures. Thorax and abdomen shining, impunctate with general oily lustre. Body covered with blackish pubescence.

Male.—Average length 7.5 mm. Similar to female except antennal segment 6 and 7 fuscoferruginous. *Genitalia*: Penis valve (Fig. 25), genital capsule (Fig. 31).

Types.—♀ (holotype), 1 ♀ (paratype) at Naturhistoriska Riksmuseet, Stockholm.

Specimens examined.—2 ♀, 1 ♂, India, Himachal Pradesh, Kasol, 1,600 m, 29.v.1984; 2 ♀, West Bengal, Darjeeling, 2,280 m, 2.v.1986; 1 ♂, Uttar Pradesh,

Ghangria, 3,000 m, 27.vi.1987; 1 ♀, Chop-ta, 3,000 m, 25.vi.1992; 1 ♀, Arunachal Pradesh, Nine mile, 2,000 m, 24.5.1993.

Distribution.—Myanmar; India: Himachal Pradesh, West Bengal, Uttar Pradesh, Arunachal Pradesh.

Variation.—The apical half of antennal segment 5, the pronotum almost entirely, and the mesoscutellar appendage more or less may be whitish yellow. The apical half of antennal segment 8 may be black.

Remarks.—This species is characterized by the whitish yellow antennal segments 6–8, tegulae, narrow posterior margins of tergites 2 and 6–8, broad posterior margin of tergite 9, and sternites 2–7; roundly incised clypeus which is incised for half its medial length; subquadrate postocellar area; and lateral furrows reaching the hind margin of head. The female lancet is distinct from other known females by having only ten serrulae and only on the apical half rather than on most of its length (Fig. 21).

The specimens studied go to *Kambaitana* in Malaise's keys (1961, 1963) and agree with the original description (1961). The male is associated with the female for the first time.

ACKNOWLEDGMENTS

The financial assistance rendered by the US, PL-480, Project No. IN-ARS-418, in collaboration with ICAR, New Delhi, is thankfully acknowledged. Cathy Anderson, Systematic Entomology Laboratory, U.S.D.A., took the photos and prepared the plates. We thank N. M. Schiff, U.S. Forest Service, Stoneville, MS, and D. A. Nickle and J.W. Brown, Systematic Entomology Laboratory, Beltsville, MD, and Washington, DC, respectively, for reviewing the manuscript.

LITERATURE CITED

- Abe, M. and Smith, D. R. 1991. The genus-group names of Symphyta (Hymenoptera) and their type species. *Esakia* 31, 115 pp.
 Malaise, R. 1961. New Oriental saw-flies (Hymen.: Tenth.). *Entomologisk Tidskrift* 82(3–4): 231–260.

- Malaise, R. 1963. Hymenoptera Tenthredinoidea, subfamily Selandriinae, key to the genera of the World. *Entomologisk Tidskrift* 84(3-4): 159-215.
- Saini, M. S. and J. S. Deep. 1994. First record of Allantinae (Tenthredinidae: Hymenoptera) from India. *Journal of the Bombay Natural History Society* 91: 47-50.
- Smith, D. R. 1979. Nearctic Sawflies IV. Allantinae: Adults and larvae (Hymenoptera: Tenthredinidae). United States Department of Agriculture, Technical Bulletin 1595, 172 pp.